

FIG. 1

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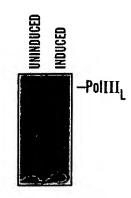


FIG. 2A

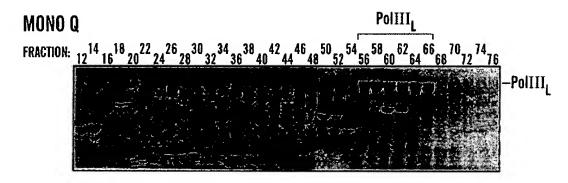
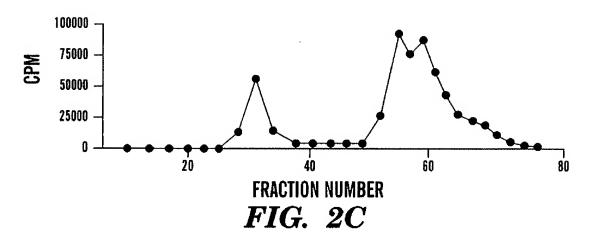


FIG. 2B



#### **PHOSPHOCELLULOSE**

FRACTION: 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40

-PoiIIIL

FIG. 2D

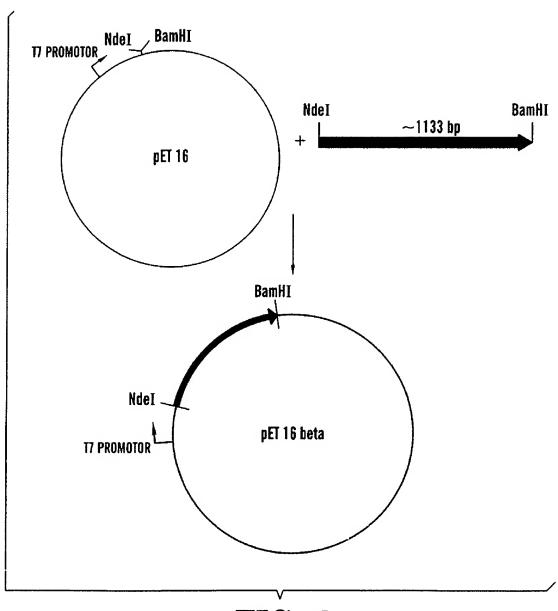
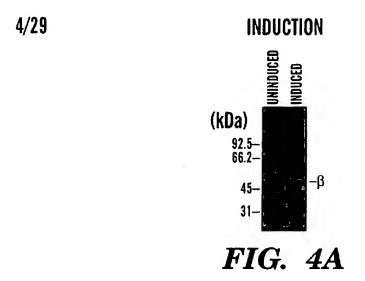


FIG. 3



## NICKEL COLUMN

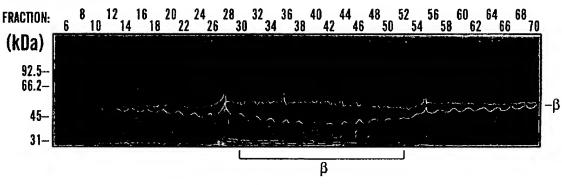


FIG. 4B

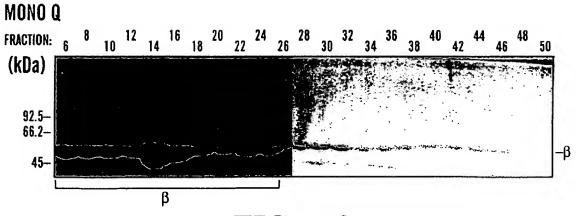


FIG. 4C

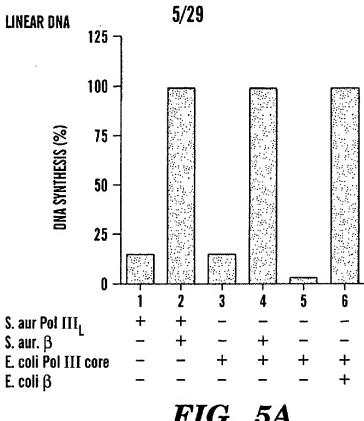


FIG. 5A

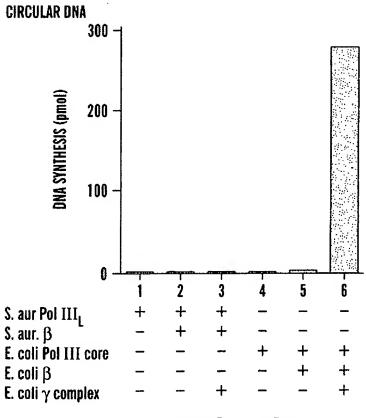
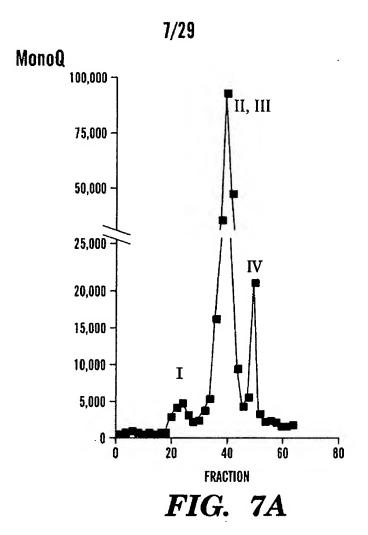
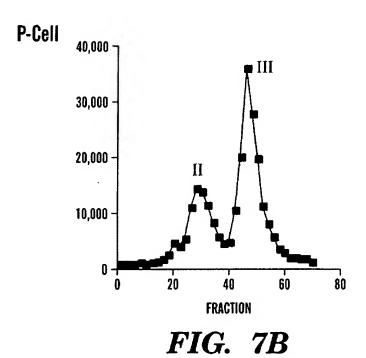


FIG. 5B

		2	3	4	5 6 -RFII -ssdna
S. aur Pol III <sub>I</sub>	+	+	_	+	
S. aur β	+	+	_	_	+ -
E. coli Pol III CORE	_	_	_	_	+ +
E. coli β			+	+	- +
E. coli y COMPLEX	-	+	+	+	+ +
DNA SYNTHESIS (pmoi)	4.5	5.5	3.9	58	4.4 109

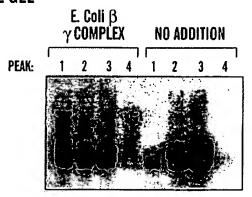
FIG. 6





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### **AGAROSE GEL**



## FIG. 8A

### **DNA SYNTHESIS**

	DNA SYNTHESIS (PMOI) PEAK				
ADDITION	PEAK 1	PEAK 2	PEAK 3	PEAK 4	
NONE	22.7	70.6	146.1	4.7	
E. coli $\beta$ , $\gamma$ COMPLEX	72.9	61.2	71.4	25.9	

FIG. 8B

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KIWRATCIWNCDFRSSACKAVAKDVGRIMGFDEVTLNEISSLIPHKLGITLDEAYQID-D MYGRDAVSQIITFGTWAAKAVIRDVGRVLGHPYGFVDRISKLIPPDFGMTLAKAFEAEPQ MYGRDAVSQIITFGTWAAKAVIRDVGRVLGHPYGFVDRISKLVPPDFGMTLAKAFEAEPQ	FKKFVHRNHRHORWFSICKKLEGLPRHTSTHAAGIIINDHPLYEYAPLTKGDTGLLTQ LPEIYBADEEVRALIDMARKLEGVTRNAGKHAGGVVIAPTKITDFAPLYCDEEGKHPVTQ LPEIYBADEEVRALIDMARKLEGVTRNAGKHAGGVVIAPTKITDFAPLYCDEEGKHPVTQ	WIWIEAERIGILKIDFLGLRNLSIIHQILTRVEKDLGFNIDIEKIPFDDQKVFELL FDKSDVEYAGLVKFDFLGLRILTIINWALEMINKRRAKNGEPPLDIAAIPLDDKKSFDML FDKSDVEYAGLVKFDFLGLRTLTIINWALEMINKRRAKNGEPPLDIAAIPLDDKKSFDML	SQGDTTGIFQLESDGVRSVLKKLKPEHFEDIVAVTSLYRPGPMEEIPTYITRRHDPS- QRSETTAVFQLESRGMKDLIKRLQPDCFEDMIALVALFRPGPLQSGMVDNFIDRKHGREE QRSETTAVFQLESRGMKDLIKRLQPDCFEDMIALVALFRPGPLQSGMVDNFIDRKHGREE	KVQYLHPHLEPILKNTYGVIIYQEQIMQIASTFANFSYGEADILRRAMSKKNRAVL ISYPDVQWQHESLKPVLEPTYGIILYQEQVMQIAQVLSGYTLGGADMLRRAMGKKKPEEM LSYPDVQWQHESLKPVLEPTYGIILYQEQVMQIAQVLSGYTLGGADMLRRAMGKKKPEEM ** * * * * * * * * * * * * * * * * * *	ERDAQHFIEGTKQNGYHEDISKQIFDLIAKQRSHSAAYALVSYQTLWLKAHYPA AKQRSVFEEGAKKNGIDGELAMKIFDLVEKPAGYGFNKSHSAAYALVSYQTLWLKAHYPA AKQRSVFEEGAKKNGIDGELAMKIFDLVEKPAGYGFNKSHSAAYALVSYQTLWLKAHYPA * ** ** ** ***
S.aureus	S.aureus	S.aureus	S.aureus	S.aureus	S.aureus
E.coli	E.coli	E.coli	E.coli	E.coli	E.coli
Sal.typ	Sal.typ	Sal.typ	Sal.typ	Sal.typ	Sal.typ

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SIAKVFAKAINCLNSTDGEPCNECHICKGITQGTNSDVIEIDAASNNGVDEIRNIRDKVKYA SAAKIFAKAVNCEHAPVDEPCNECAACKGITNGSISDVIEIDAASNNGVDEIRDIRDKVKFA ----SHAYLFSGPRGTGKT SIARLLAKGLNCETGITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYA ATP site PSESKYKVYIIDEVHMLTTGAFNALLKTLEEPPAHAIFILATTEPHKIPPTIISRA PSAVTYKVYIIDEVHMLSIGAFNALLKTLEEPPEHCIFILATTEPHKIPLTIISRC PARGRFKVYLIDEVHMLSRHSFNALLKTLEEPPEHVKFLLATTDPQKLPVTILSRC \*\* \*\* \* \* \* \* \* \* \* \* \* \*\*\*\*\*\* MKGYCLWRCNLDYQALFVVPTP-KFEDVVGQEHSEDCAMG--\* \*\*\*\*\*\*\*\* Zn++ finger \*\*\* S.aureus B. sub E. coli S.aureus S.aureus B. sub E. coli B.sub. E.coli

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S.aureus B.sub E.coli Sal.typ	ALNIANKIERMKIYLAVGIFSLEMGADQLITRNICSSGNVDSNRLRTGTWTEEDWSRFTI ALNIAQNVA-TKTDFSVAIFSLFMGAEQLVMRMLCAEGNINAQNLRTGNLTEEDWGKLTM AMNLVENAA-MLQDKPVLIFSLEMPSEQIMMRSLASLSRVDQTKIRTGQLDDEDWARISG AMNLCENAA-MLQDKPVLIFSLEMPGEQIMMRMLASLSRVDQTRIRTGQLDDEDWARISG * * * * * * * * * * * * * * * * * * *
S.aureus B.sub E.coli Sal.typ	AVGKLS-RTKIFIDDTPGIPINDLRSKCRRLKQEHG-LYVIVIDYLQLIPGVGSRASDNR AMGSLS-NSGIYIDDIPGIRVSEIRAKCRRLKQESG-LGMILIDYLQLIQGSG-RSKDNR TWGILLEKRNIYIDDSSGLTPTEVRSRARRIAREHGGIGLIMIDYLQLMRVPALSDNR TWGILLEKRNMYIDDSSGLTPTEVRSRARRIFREHGGLSLIMIDYLQLMRVPSLSDNR ************************************
S.aureus B.sub E.coli Sal.typ	QQEVSEISRTLKALARELECPVIADSQLSPALPPRRATRPDLPRH

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B.sub.yqeN E.c.delta	MYFDVWKSLKXGE-VHPVYCLYGKETYLLGETVBRIRGTVVDGETKDPNLSVPDLEED MIRLYPEGLRAGLNEGLRAAYLLLGNDPLLLGESGDAVRGVAAAGGFEEHHTFSIDPNTD *:	59
B.s.yqaN E.c.delta	PLDQAIADAMTFPFMGERRLVIVKNPYFLTGEKKKERIEHNVSALESYIQSPAPYTVFVL -WMAIFSLCQAMSLFASRQTLLLLLPENGPHAAINEQLLTLTGLLHDDLLLIVR : :: .::.:::	117
B.s.yqeN E.c.delta	LAPYEKLDERKKLTKALKKHAFIGGEAKELHAKETTDFTVNLAKTEQKTIGTEAAEHLVLL GNKLSKAQEHAAWFTALANKSVQVTCQTPEQAQLPRWVAARAKQLNLELDDAANQVLCYC	125
B.s.yqeN E.c.delta	VMGHLSSIFQEIQKLCTFIGDREEITLDDVKMLVARSLEQNIFELINKIVMRKRTESLQI YEGHLLALAQALERLSLLWPDGK-LTLPRVEQAVMDAAHFTPFHWVDALLMGKSKRALHI !*!* :	235
B.s.yqaN E.c.delta	FYDLLKQNEEPIKIMALISHQFRLILQTKYFAEQGYGQKQIASHLKVHPFRVKLAHDQAR LQQLRLEGSEPVILLRTLQRELLLLVNLKRQSAHTPLR-ALFDKHRVWQNRRGWMGHALM 1 1° 1° 1 11 111 ° 11 1 1 1 1 1 1	291
B.s.yqab E.c.delta	LFSEEELRLIIEQLAVMDYENKTGKKDKQLLLELFLLQLLKRHEKNDPHY RLSQTQLRQAVQLLTRTELTLKQDYGQSVWAELEGLSLLLCHKPLADVFIDG	343

## FIG. 12A

B.s.yqeN 8.p. delta	-MVFDVWKSLKKGEVHFVYCLYGKETYLLQETVSRIR-QTVVDQETKDFMLSVFDLEEDP MIATEKIEKLSKEMLGLITLVTGDDIGQYSQLKSRIMEQIAFDKDDLAYSYFDMSEAA  1.11 1.*.* 11 1 * 1	59
Bsub.yqeN	LDQATADAETFPFMGERRLVTVKHPYFLTGERRKERIEHHVSALESYIQSPAPYTVFVLL	117
S.p.delta	YQDAEHDLVSLPFFAEQKVVIFDHLLDITTHKKSFLKEKDLKAFEAYLEHPLETTRLIIF	
		125
Baub.yqeN	Apyeklderkki/kalkkhaphmeakelnakettdp/tvhlakteqktiqteaaehlvllv	143
8.p.delta	AP-GKLDSKRRLVKLLKRDALVLEANPLKEAELRTYPQKYSHQLGLGFESGAFDQLLL	
Baub.ygeN		235
S.p.delta	NGHLSSIFQEIQKLCTFIGDREEITLDDVKKLVARSLEQNIFELIKKIVKRKRTESL	
p.b.detts	RSHDDFSQIHCHAFLKAYKKTCHISLTDIEQAIPKSLQDHIFD-VTRLVLRGKIDAA 1.1 . *.! * !*! !! *!* *!! !.!**!!***!!!! * !!!	
Bsub, ygeN	Q-ifydllkoheepikinalismofrlilotkypaeogygokolasmlkvhpfr	291
S.p.delta		
o.p.uerca	RDLIHDLRLSGEDDIKLIAINLGQFRLFLQLTILARDVKNEQQLVISLSDILGRRVNFYQ t til***! **!!*!! .****!** . !*.! .!!*!* !*!*!!	
Bsub.yqeN	VKLAMDQARLFSEEELRLIIEQLAVMDYENKTGKKDKQLLLELFLLQLLKRNEKNDPHY	343
S.p.delta	VKYALKDSRTLSLAFLTGAVKTLIETDYQIKTGLYEKSYLVDIALLKIMTHSQK	343

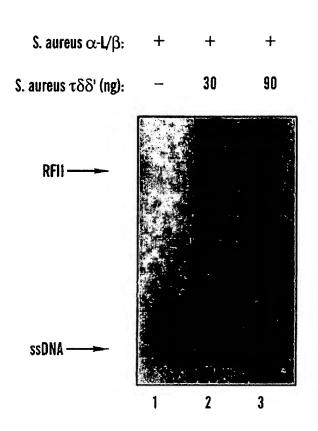


FIG. 13

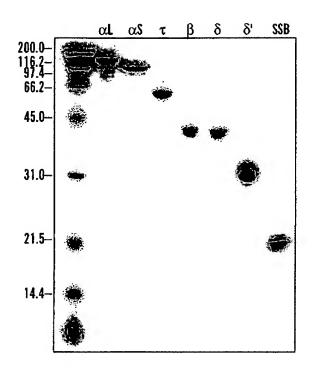


FIG. 14

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SUPEROSE 6

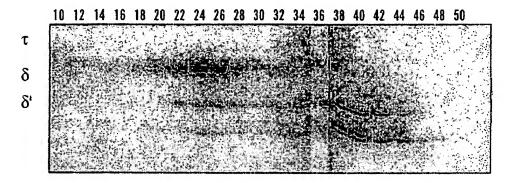


FIG. 15A

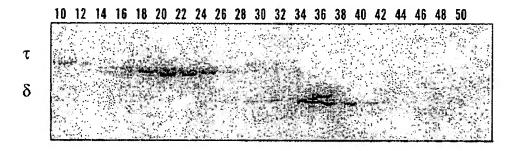


FIG. 15B

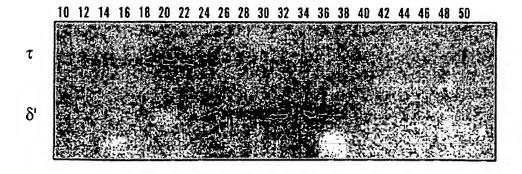


FIG. 15C

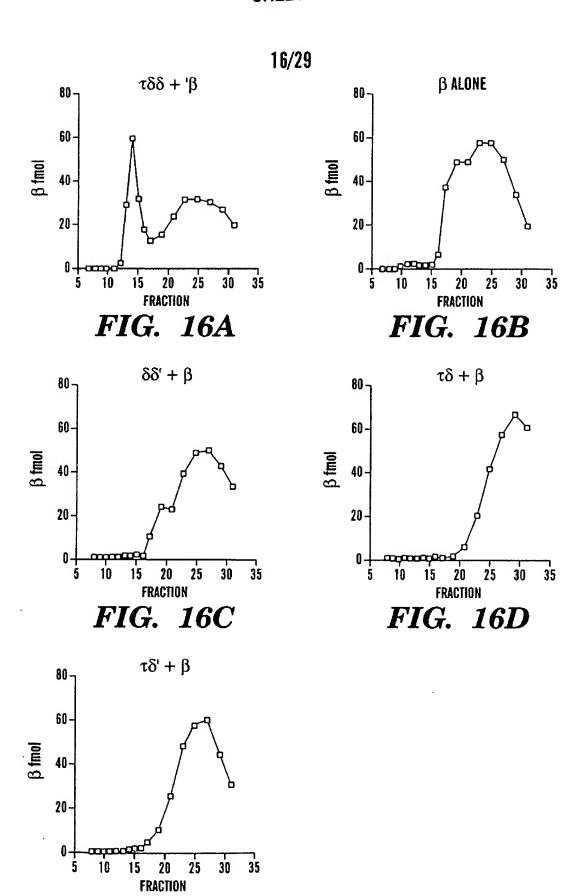


FIG. 16E

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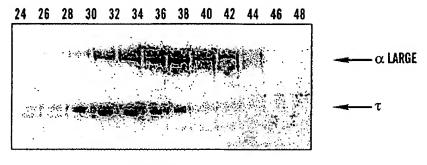


FIG. 17A

24 26 28 30 32 34 36 38 40 42 44 46 48



FIG. 17B

24 26 28 30 32 34 36 38 40 42 44 46 48

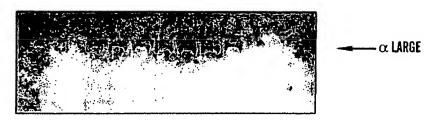


FIG. 17C

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SUPEROSE 6

6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50



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αLτδδ" + β/DNA

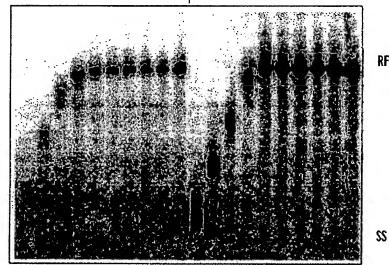
3:1

10:1

RFII

TIME (SEC)

2 4 6 8 10 12 14 16 18 20 2 4 6 8 10 12 14 16 18 20



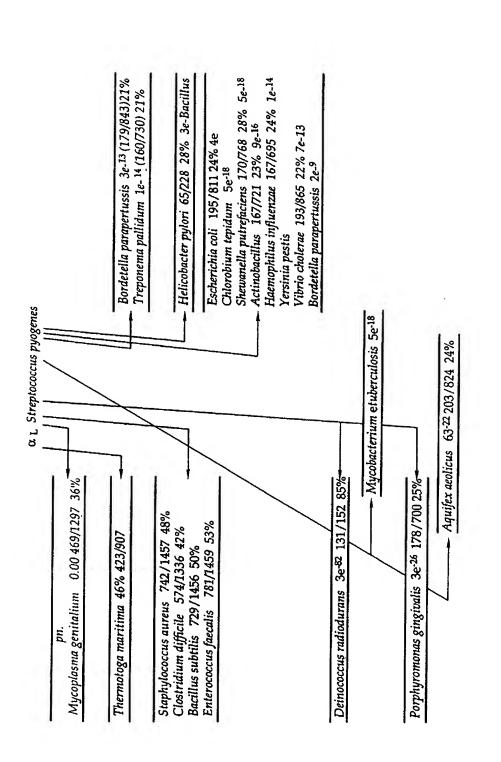


FIG. 20A

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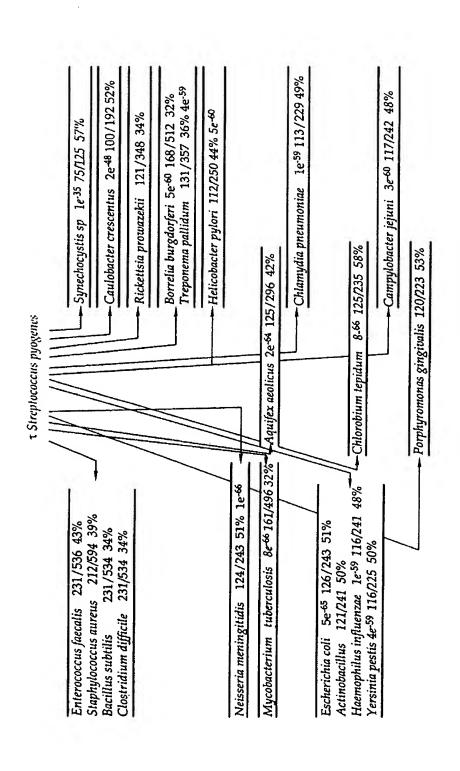


FIG. 20B

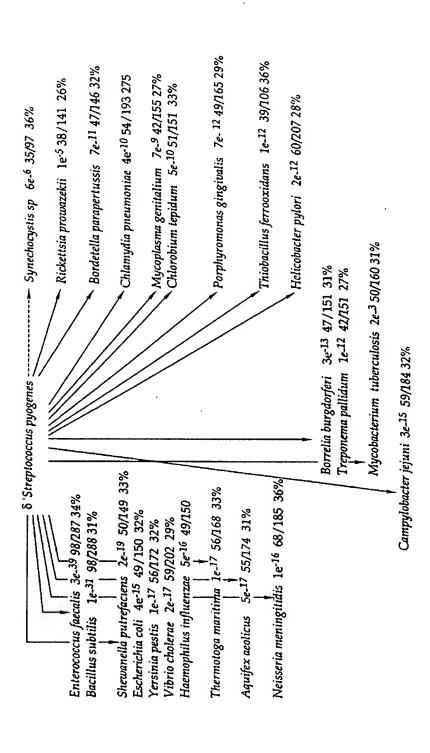


FIG. 20C

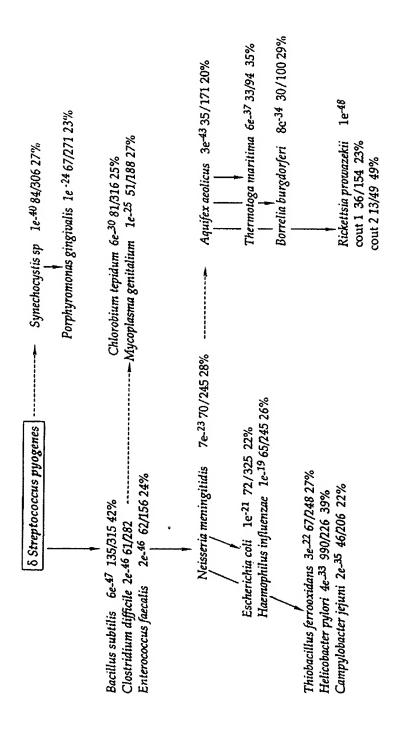


FIG. 20D

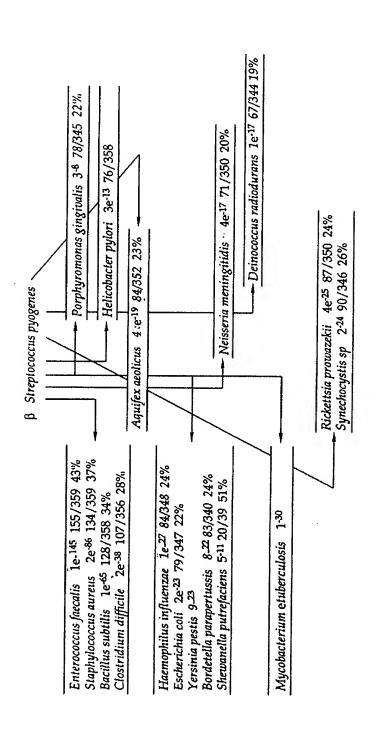


FIG. 20E

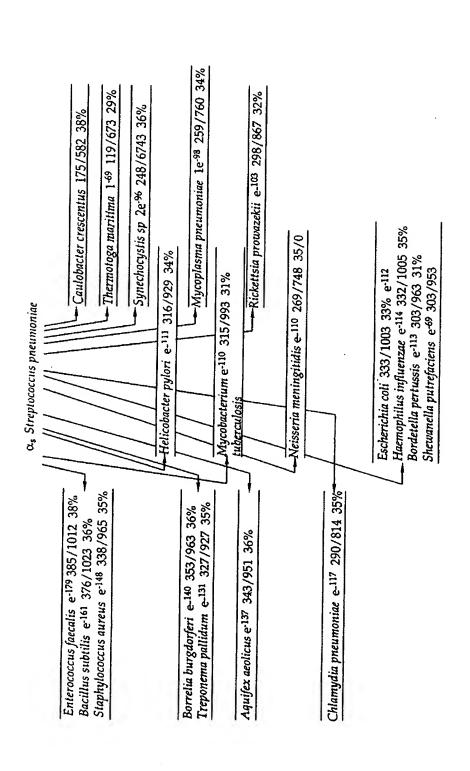


FIG. 20F

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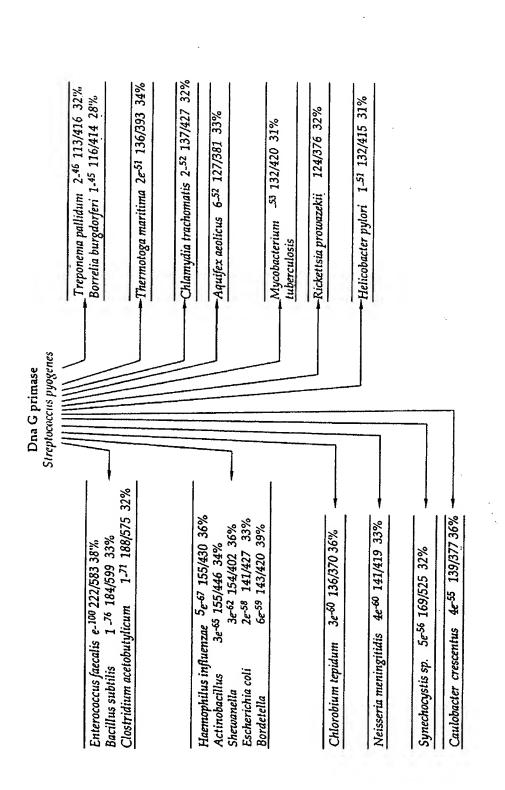


FIG. 20G

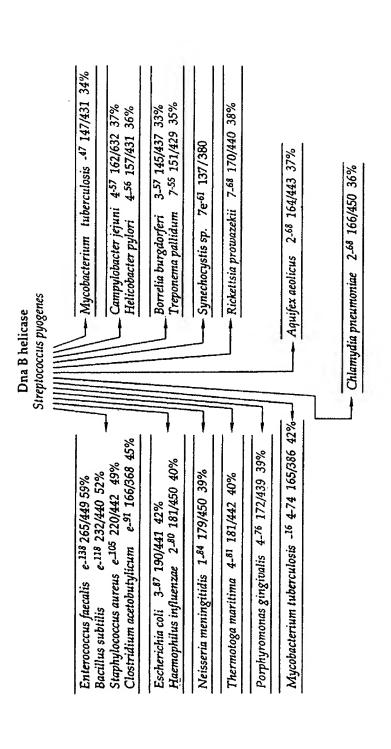


FIG. 20H

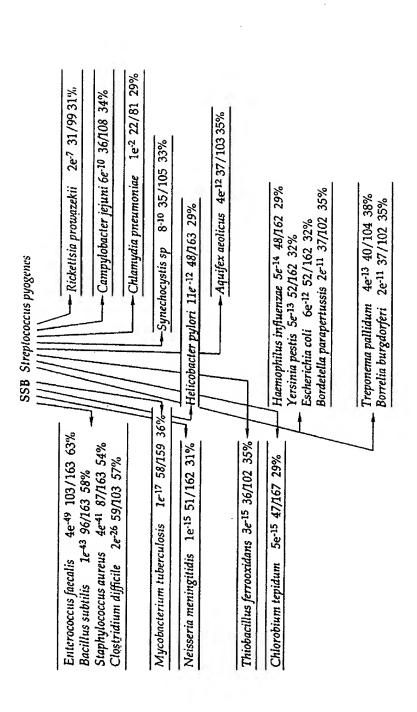


FIG. 201

